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Poster Title	**Gene Silencing in Plant Biotechnological Applications. Role of promoters in transgene silencing responses.**
Abstract	Stable and high expression of transgenes is essential for the development of any genetically engineered crop. The low expression of transgenes and the high variability amongst transgenic lines due to gene silencing is nowadays a big challenge for plant molecular farming, plant synthetic biology and in general, the development of new genetically modified crops. RNAi pathways are responsible for the silencing of transgenes as a result of the activation of defence mechanisms of the plant evolved to confront invasive nucleic acids such as transposons and viruses. Our main goal is to elucidate what are the signals in the transgenes that license the silencing response and how can we avoid them in the generation of new transgenic plants. We have generated a tool that allows us to measure transgene silencing by measuring luciferase expression and activity. Therefore, establishing a correlation between LUC expression and silencing. This assay provides a sensitive method for the accurate quantification of small changes in transcription and translation resulting from changes in transcriptional and post-transcriptional gene silencing. By using this tool, we will analyse a set of *Arabidopsis thaliana* promoters with different features, to discover the signals responsible for the recognition of transgenes by the plant. For that purpose, we will study the nature of the introduced DNA (promoter sequence content, degree of epigenetics, level of homology (repetition), etc.) and correlate it with the degree of silencing induced. After these analyses, we expect to clarify the signals involved in the licensing of silencing. This will help avoid silencing in biotechnological applications, making possible to obtain higher yields of recombinant protein production for molecular farming and simplifying the complexity of gene expression regulation for synthetic biology and crop improvement.